

From: Kevin Kauffman
Sent: Monday, December 22, 2003 11:42 AM
To: Sajac, Virginia; Dabbs, Paul
Subject: B160 Chapter 1 Comments

Paul and Ginny,

I scanned the version sent to me so that I could make comments throughout the document. There are not that many, but this was efficient for me. Hopefully you find them useful.

Thanks & Happy Holidays,

Kevin Kauffman

Chapter 1

Plan Overview

California is the nation's most populous state with over 36 million people. California is the top-ranked state in the value of agricultural production, contributing over half of the nation's fruit, nut, and vegetable production. Electronics, aerospace, banking, the film industry and recreation are only a few of the businesses that have made California a unique economy. The people, together with the abundant natural resources and business opportunities, have made the state's \$1.4 trillion economy the fifth largest in the world. California also leads the nation in the number of native plant and animal species.

All aspects of California are dependent on water. Management and development of sufficient and reliable water supply are key factors in the state's success and quality of life. Development over the past 150 years has made California's economy the largest in the union, but has also impacted the natural environment. Water supply development and flood control improvements have resulted in reductions in river flows, changes in timing of flows for flood management, as well as contributed to species losses, impacts on commercial fisheries, and degraded water quality.

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California has resources to meet many, but not all, of its water demands with its present population (see table). Except in multiyear droughts, many urban areas have sufficient supplies for existing populations. However, even in average years some agricultural demands are not fully met. Rural residents on small water systems or wells can experience limited water supply during droughts. The past few decades have seen more water being dedicated for restoring impacted ecosystems. However, on many rivers/streams, flows have been modified to the extent that they no longer support ecosystem functions; flow regimes no longer resemble natural hydrographs. In addition, California continues to rely on an unsustainable overdraft of some of its groundwater basins. Water quality is generally good but many areas face specific water quality problems.

Experience with past droughts, most notably in 1976-1977 and 1987-1992, demonstrated the economic and environmental impacts of critical water shortages throughout California. There is always a potential of longer and more severe droughts. Until the 1970s, construction of new water supply infrastructure was the primary method of securing water for a wide variety of water uses. Since that time, no major water supply projects have been built in California. Major water supply projects will be built for the benefit of California's future, but now, only in a manner that is compatible with

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approved planning that includes the input of all stakeholders.

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Selected Historical Water Portfolio Categories and 2030 Scenario Demands Statewide Quantities in Million Acre-Feet

Category	1998 (Wet)		2000 (Avg)		2001 (Dry)		5c~ios
	Applied Water	Depletion	Applied Water	Depletion	Applied Water	Depletion	Additional Demands In Average Water Years
Precipitation	329.6		187.7		139.2		NA
Developed Supply	97.7	76.1	82.0	63.6	65.2	49.7	
Urban Use	7.7	6.0	8.7	6.7	8.7	6.7	2 -3
Agricultural Use	27.3	20.6	33.6	25.8	33.8	26.2	About same as 2000
Environmental Water Dedication	62.7	49.5	39.7	31.1	22.7	16.7	7-7
Net Groundwater Extraction	4.5	4.5	7.6	7.6	11.2	11.2	NA
Groundwater Overdraft	Unkno wn						1 -2

Depletion is that portion of applied water that was consumed and not available as a supply source.

Why is groundwater not part of the 'developed supply'? This should be explained]

Challenges facing California water resources and management still revolve around how to deal with the need to balance the limited, and variable, water supplies for various uses, especially during droughts. Some of the specific challenges that will require improved water management include population growth, less water from the Colorado River, groundwater overdraft, contamination of our surface and groundwater (further limiting supplies), global climate change impacts to water resources, ecosystem degradation, constraints on inter-regional deliveries, providing a reliable water supply for food production, Californians without clean and safe drinking water, and insufficient State and federal funding for implementing Stage I of the Bay Delta Program.

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Based on the scenarios considered for this Water Plan Update, an initial estimate of additional statewide 2030 water demands in average water years are between ? million million acre-feet. This includes an additional 2 million 3 million acre-feet for a projected population growth of 17 million more Californians (53 million people by 2030); an additional 1 million 2 million acre-feet for recovering groundwater overdraft; and an

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additional? million million acre-feet for meeting future environmental water objectives
[This range will be filled in after staff completes its analysis.]

| Assuming global warming trends continue, California hydrology will not be the same as we have experienced in the past century. While many uncertainties remain, primarily on the degree and timing of change to be expected, the prospects of significant reductions to the Sierra snowpack warrant examination of how the State's water infrastructure and natural systems can accommodate or adapt to climate changes and whether more needs to be done to detect, evaluate and respond to water resource system effects. State agencies should develop hydrology scenarios for evaluating the ability of water projects to respond to potential future climate change impacts.

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Today's responses to these challenges include a broader range of water management practices than historically thought to be available. Where historical resources needs were often viewed in terms of tradeoffs between resources, today's comprehensive planning is beginning to consider all needs. A key part of this planning is the role of local and regional water supplies as part of the mix of resources to be developed to meet the larger statewide supply objectives. In recent decades, the reliance on storage and conveyance has adapted to also include more water conservation and recycling and other water management strategies. Water planners are now considering broader stakeholder needs in developing more inclusive, innovative and diversified plans; and water agencies have instituted significant water conservation, water recycling, groundwater conjunctive use programs, water transfers, and other integrated operations.

| Considering the above discussion, this update of the California Water Plan provides decision-makers, resource managers, water suppliers and allwater users a forward-

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looking planning framework and a water plan for the next quarter century with specific actions and recommendations that, if implemented, should:

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- Provide adequate, reliable and sustainable water of suitable quality for all beneficial uses to the year 2030.
- [I suggest consolidating the following in two two bullets with sub-bullets if necessary]
- Strengthen the State of California's leadership, coordination, oversight and public investment for protecting and developing water resources and water infrastructure, our public trust assets.
- Provide State assistance to local water planners, agencies and governments, using recommended principles, to initiate or expand regional integrated resource planning.
- Provide State assistance to fill serious gaps in data and analytical tools, improve and simplify public access to water information, and support investigations, research and development of promising new technologies.
- Encourage and support local and regional planners to diversify and increase the management strategies in their integrated resource plans.
- Assist local governments and agencies to improve the coordination of land use planning with water planning and management.

Support the adoption of regional water supply project implementation plans.

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It is noteworthy that the Water Code states that the California Water Plan can not mandate actions nor authorize spending for its recommendations. Also, as a strategic plan, the Water Plan does not make project-specific or site-specific recommendations, and as such, does not include environmental review and documentation as required by the California Environmental Quality Act (CEQA). To provide public funding and realize the actions in this Water Plan, law and policy makers must take further action to adopt them. This underscores the need to have broad stakeholder and public participation and support for the Water Plan if its recommendations are to be realized.

Implementation will occur on the local and regional level with assistance and guidance from the State.

The information in the Water Plan Update is based on the best available data and information and documents current gaps in data and analytical tools. This Update is being prepared using a phased work plan to enable the Department of Water Resources to further quantify and improve the estimates for future water supplies and uses presented in this report over the next two years. As a strategic

plan, the findings, recommendations and action plan presented in this Water Plan Update will be periodically reviewed and revised; DWR will publish five other Water Plan Updates during this Update's planning horizon to 2030.

Organized in four volumes, this Water Plan includes the following information in support of the actions and recommendations presented in the Water Plan Implementation and Investment Guide, which is summarized in this chapter and described in detail in Chapter 6 (Implementation and Funding):

- Statewide water challenges, programs, resources, and infrastructure (Chapter 2).
- How water is managed, allocated, used, and regulated in California (Chapter 2).
- Estimates for current statewide and regional water supplies and uses (Chapter 2 and Volume 2).
- Significant uncertainties and risks that need to be considered in water planning, including multi-year droughts; several plausible scenarios for estimating future water supplies and uses; and a work plan for filling data gaps and developing analytical tools for subsequent phases and updates of the Water Plan (Chapter 3).
- Practices, issues, roles and strategies for improving regional integrated resource planning and management (Chapter 4).
- 25 resource management strategies included in the Implementation and Investment Guide (Chapter 4 and Volume I Appendix). I agree with others that a summary of the table is needed in this chapter

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The California Water Plan is the State's strategic plan for managing and developing water resources statewide. The Water Plan is a document that DWR periodically updates in accordance with the Water Code. The first Water Plan was published by DWR as Bulletin 3 in 1957. Since then, DWR has prepared seven Water Plan Updates, published as the Bulletin 160 series. The Water Code now requires DWR to update the California Water Plan every five years. DWR published the last Update in 1998.

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- The State's role, responsibilities and commitments, and principles for providing State assistance for local and regional planning and management (Chapter 5).
- Reports and recommendations on each of the 10 hydrologic regions, mountain counties, Sacramento-San Joaquin Delta, and southern California area (Volume 2 Regional Reports).
- Supplemental reference information (Volume 3 Reference Guide).
- Documentation on data, tools and methods (Volume 4 Technical Guide).

The Water Plan

Vision, Goals and Objectives for 2030

The Water Plan vision for 2030 is having adequate, reliable and sustainable water of suitable quality for all beneficial uses. *[Some people, me included, believe that 'there is no new water' to be developed, only water that can be re-appropriated. I do agree with other AC members that this vision statement needs more work. Perhaps . . .]* The Water Plan vision for 2030 is to educate the policy makers of the fact that water supply for the State of California is a finite resource, who's use is currently maximized. State, regional, and local policy makers may shift use from one area of benefit to another, but they also must understand the consequences of their actions. This Water Plan is intended to illustrate such consequences.

The Water Plan goals for 2030 are:

- Maintain and improve the quality of life for a projected 53 million Californians, 17 million more people than today.
- Sustain the state's economic growth, business vitality and agricultural industry
- Protect and restore impacted ecosystems
- Regions to play the central role in their integrated water and resource planning
- Provide for more informed decisions for statewide, regional and local water supply management

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The Water Plan management objectives both State and Regionwide for meeting these goals are:

- Integrate & optimize management strategies
- Increase drought resiliency
- Improve water quality
- Increase operational flexibility & efficiency
- Improve flood management
- Increase energy generation or reduce use
- Increase recreation opportunities
- Enhance instream, riparian or terrestrial ecosystems
- Reduce groundwater overdraft
- Reduce pollution
- Reduce runoff, drainage or tailwater
- Reduce uncertainty or minimize risk

Action Plan – Water Plan Implementation and Investment Guide

The recommended actions for State, federal, regional and local entities are summarized in the Implementation and Investment Guide Table (details in Chapter 6). If these actions are implemented, we can meet the Water Plan's goals and achieve the water management objectives for 2030, including the Bay Delta Program's Stage I actions.

To realize the actions in the Implementation and Investment Guide, we need regional integrated resources planning in most, if not all, regions of California, significant State, federal and local investments, additional public and private partnerships, and better data and analytical tools. To achieve the full range of benefits identified in the Implementation and Investment Guide, the State of California needs to invest about \$1 billion of public funds annually over the next 25 years, and the federal government and local agencies and governments will each need to provide matching funds (not including funds to maintain the existing water infrastructure); a total public and private investment of \$75 billion. *[Two Comments: (1) How about a discussion on decentralizing the State's role, providing more resources directly to the regions. (2) A suggestions to the regions that they consider the 'no action' or 'planned growth' alternative of shifting current water use that encourages unsustainable suburban growth.]*

The various programs in the Bay Delta Program Record of Decision (ROD) are an integral part of the Water Plan Implementation and Investment Guide. These programs include projects for improving water supplies, conveyance, water quality, watershed health, the Bay-Delta ecosystem, water use efficiency and levee system integrity. Those actions identified for implementation during Stage I of the Bay Delta Program are identified as near-term actions.

The potential supply benefits shown in the Implementation and Investment Guide Table may not be additive because various strategies can compete for the same water, such as surface storage and conjunctive management. Also, some water transfers constitute a reallocation of water (change of use of existing supplies) and would not augment supplies from a statewide perspective, even though they may serve as additional water from a local perspective.

Water Plan Implementation and Investment Guide Table

The Guide lays out actions for improving statewide water planning, regional integrated resource planning, improving data and analytical tools, and expanding State support for investigations, research and develop of new technologies and management strategies. The Guide also includes 25 resource management strategies available to regions to diversify their water portfolios assets.

The table shows activities, programs, and resource management strategies for implementation and those needing additional **investigation, research and development** for the near-term **(to 2010)** and the **medium/long-term (2011 to 2030)**. For each action, the table includes potential supply benefits (if applicable and available), the water management objectives achieved by implementing the action, implementation cost (not including operation and maintenance cost), the lead entity, and the actions that State government should take to help implement the action.

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Water Plan Major Recommendations

1. • Invest \$1 billion per year of State funds, with equal matching federal and local funds (\$75 million by 2030) to implement the actions in the Implementation and Investment Guide.

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2. • The State retains major constitutional, statutory and regulatory responsibilities to provide leadership, planning and oversight for many aspects of California's water resources and management that the regions cannot accomplish on their own. *[I suggest an additional and somewhat, but not necessarily competing recommendation: Have the State delegate the authority, responsibility, and accountability of the water plan to the regions and locales.]*

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3. • The regions should continue developing their integrated resource plans, if possible on a watershed basis. DWR will revise its Strategic Business Plan to more effectively provide the regions guidance, technical and administrative assistance to support their integrated resource planning.

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4. • The regions, with State incentives and assistance, should aggressively and continuously implement a diversified water portfolio including: system reoperation, urban and agricultural water use efficiency, municipal water recycling, conjunctive management and groundwater storage, conveyance, brackish water desalination and water transfers. They should also concurrently invest in strategies to reduce pollution and stormwater runoff, improve groundwater recharge and floodplain management, improve drinking water quality, and restore impacted ecosystems.

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5. • By 2010, provide State funding and secure federal funding for completing implementation of the Bay-Delta Program Stage I Record of Decision actions. The State should complete investigating the ROD's five surface storage projects and should pursue implementing any of the projects that meet the Bay Delta Program principles for technical, environmental and economic feasibility.

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6. • Implement and provide State cost share funds to implement the recommendations the Governor's Advisory Drought Planning Panel's contingency plan, Sacramento and San Joaquin River Basins Comprehensive Study for flood control improvements, Floodplain Management Task Force, Water Desalination Task Force, Stormwater Quality Task Force, State Recycling Task Force, and Update 2003 to California's Groundwater (Bulletin 118-03).

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7. • As soon as practicable, establish the Governor's Water Committee to strengthen communication, coordination and cooperation, and ensure consistent strategic planning and implementation among State departments dealing with water. *[PLEASE! – why not suggest using the existing water commission/]*

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8. • Cities, counties and LAFCO's are encouraged to include a Water Element in their next General Plan update to improve coordination of land use planning and water planning and management. The State should provide regional and local planners technical, administrative and financial assistance in implementing relevant legislation such as SB 221 and 610 and related State policies. *[LAFCo's recently reorganized their purpose, which I believe already includes this; if not specifically, I think the updated authority certainly gives them the ability to accomplish this.]*

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9. • DWR should develop and maintain the California Water Plan Information Exchange (Water PIE), a data management system to assist regional and local agencies and governments prepare their integrated resource and watershed plans.

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10. • DWR should implement the work plan to improve the data and analytical tools for subsequent phases and updates of the Water Plan and regional planning efforts.

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11. • The State should support water research and development, including monitoring and studies on global climate change impacts on California water resources and system.

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I suggest these recommendations be categorized and consolidated. #5, 6, & 11 seem to be a subset of #1; I suggest consolidating. Major Recommendations should be much less than 10.

Recommendations for Resource Management Strategies to Diversify Regional Integrated Plans

This Water Plan Update includes information on a diverse set of 25 resource management strategies (details in Chapter 4 and Management Strategy Appendix) available to regional and local planning efforts. The State encourages resource planners and managers to examine all of these strategies to identify the combinations of management strategies that are uniquely suited to their regional setting and goals, and which are cost effective, environmentally sound and socially equitable, in other words, sustainable. The more a region can diversify its water management portfolio, the more robust and resilient it will be in facing future unknowns, and the more it will be able to leverage and utilize its regional assets. And to accommodate the uncertainties with each of these strategies, it is prudent, at least through the planning stages, to pursue an extra margin of water supply, demand reduction and ecosystem restoration capability.

In addition to more traditional water management strategies like water use efficiency, recycling, storage and conveyance, this Water Plan Update includes management strategies for recovering groundwater overdraft; improving water quality, watershed management, ecosystem restoration, urban and agricultural lands management, urban runoff and floodplain management, recreation; as well as economic incentives.

While DWR does not have authority or responsibility over all the resources covered by these strategies, they are presented in this Water Plan to provide a “one-stop shop” for resource managers and regional planning efforts. The strategy narratives and their related recommendations are designed to recognize the many interactions between water and other resources. DWR worked with other State agencies and departments that have authority over these resources to accurately articulate State policies and plans on these resources as they relate to the resource management strategies.

The management strategy narratives are based on the best available information, but supporting data for each strategy are currently not available to the same accuracy. In some cases, these are fairly rough estimates with large ranges. DWR will initiate

Resource management strategies

Agricultural lands stewardship
Agricultural water use efficiency
Aquifer remediation

Conjunctive management
& groundwater storage
Conveyance
Desalination
Drinking water treatment and distribution
Economic incentives policy
Ecosystem restoration
Floodplain management
Matching water quality to use
Pollution prevention
Precipitation enhancement
Recharge area protection
Recycled municipal water
Surface storage - Bay Delta Prog/State
Surface storage - regional/local
System reoperation
Urban land use management
Urban runoff management
Urban water use efficiency
Water transfers
Water-dependent recreation
Watershed management
Other research and development

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additional analyses under Phases 2 and 3 of the Water Plan Update process to provide policy makers and resource managers more quantitative information on the performance of various strategies on a regional basis, including interactions between strategies, and potential groupings or packages of strategies.

Implementation of some strategies will be difficult and expensive and the State will need to work with regional and local planners to overcome the issues identified in the strategy narratives will need to be overcome. For instance, with water transfers there are concerns with third party impacts. Ocean water desalination has issues with water intake and brine disposal. For new surface and groundwater storage projects there are questions about impacts of diversions on the rivers that would provide the water. With agricultural water use efficiency there are potential impacts on downstream users (agricultural, urban and environmental) that are dependent on return flows to meet their water demands.

In addition to identifying these and other issues, this Water Plan contains the following recommendations on ways to improve statewide and regional planning, to fill data gaps and improve analytical tools, and to implement the various management strategies to maximize benefits and minimize impacts. [This will be a list of the key recommendations from Chapters 3, 4, 5 and the management strategies appendix/

| Statewide Water Planning*[Again, please categorize, organize, and consolidate]*

1. The State retains major constitutional, statutory and regulatory responsibilities to provide leadership, planning and oversight for many aspects of California's water resources and management that the regions cannot accomplish on their own, including operation and maintenance of the State Water Project, protecting the environment, and planning for adequate, reliable and sustainable water of suitable quality for all beneficial uses.
2. The Governor's Office should establish a standing water committee to strengthen communication, coordination and cooperation, and ensure consistent strategic planning and implementation, among State departments dealing with water. This water committee would be chaired by a member of the Governor's Office, comprised of the directors of all State departments dealing with water (such as DWR, the California Bay Delta Authority, State Water Resources Control Board, Department of Health Services, and others), and the director of the Governor's Office of Planning and Research.
3. As trustee, the State should take the public trust into account in the planning and allocation of water resources, and to protect public trust uses, whenever feasible. The State should exercise continued supervision over its navigable waters and the lands beneath them to protect the public's rights to commerce, navigation, fisheries, recreation, ecological preservation and related beneficial uses.

4. The State has a responsibility to ensure that environmental justice is afforded to all Californians. In some cases there have been disproportionate impacts on low income communities and communities of color. For instance in the San Joaquin Valley many Hispanic residents are forced to rely on groundwater contaminated with naturally occurring arsenic. In the North Coast region thousands of Native Americans do not have piped water to their homes.
5. DWR should serve as a catalyst for regional integrated resource planning and revise

its Strategic Business Plan to include specific actions to (a) provide technical assistance to local agencies and regional groups in assessing regional water resources and developing management plans; (b) provide improved water quantity and quality data and analysis, coordinating assumptions between regions and serving as a clearinghouse for regional plans; and (c) assess regional plans as a central component of updating the Water Plan

6. The State should work with all beneficiaries to develop multiple funding sources needed to implement the actions in the Implementation and Investment Guide, to promote regional integrated resource planning, and to implement the other recommendations of this update. The State should establish funding programs and streamline administrative processes for project application, selection, and reimbursement.
7. The State should seek and leverage federal assistance and funding for State, regional and local water initiatives, including the federal share of the Bay-Delta Program. DWR should coordinate implementation of the Water Plan strategies and recommendations with the federal Water 2025 plan initiatives, in particular, improving data and tools for integrated resource planning on a regional basis.
8. The State should make funding decisions using the principles presented later in this chapter to ensure funded programs and projects are based on best management practices, broad public participation, sound science through technical review; and that funding is equitably distributed, both regionally and socially.
9. The State should pursue legislative and administrative reforms, with guidance from regional planning efforts, to promote regional integrated resource planning and to overcome regulatory and institutional barriers to effective water planning and resource management.
10. The State should provide incentives for local ground water management to reduce and reverse groundwater overdraft and achieve sustainable and safe ground water supplies.
11. The State should reinforce the link between land use and water planning and provide regional and local planners technical, administrative and financial assistance in implementing relevant legislation such as SB 221 and 610 and related State policies.
12. DWR should coordinate and fund updates of the California Water Plan and adaptively manage implementation of the California Water Plan Updates based on continuous monitoring and assessment in between five-year updates.

Regional Integrated Resource Planning*[Again, please categorize, organize, and consolidate]*

1. Local agencies and governments should assemble coordinated groups of existing entities for regional integrated resource planning and they should coordinate with, and when feasible include, state and federal participation.
2. Local agencies and governments should help the state in monitoring implementation of existing legislation related to regional integrated resource planning and encourage amendments if necessary for improving integrated planning across resources and across jurisdictions.
3. Local agencies and governments should encourage their State legislative representatives to consolidate and streamline planning laws and regulations for land use, water and water related resource management plans to eliminate single purpose planning and encourage integrated planning across resources and across jurisdictions.
4. The state should clearly articulate the advantage that regional planning could give regions in competing for loans and grants. Criteria to qualify for assistance should be framed such that it provides incentives to regional efforts. It should track state funded implementation efforts on a regional basis (whether grants and loans or state led efforts); and make this information available to the regions.
5. The state should help regions with inter-regional communication, coordination, cooperation and collaboration.
6. The state, with regional input, should develop a generic checklist of issues, resources, data, analytical tools, etc., as well as guidelines to aid regional planning efforts in the preparation of their integrated resource plans.
7. Regional planning efforts should participate in preparing future updates of the California Water Plan, especially the regional reports. The state should provide assistance when needed to facilitate their participation.
8. Federal, state and local agencies and governments should collect and document hydrology, water demand and water management data at a spatial level and in a consistent format that would allow DWR to make these data available for a watershed, a groundwater basin, a county, or any geographic area desired in a way suitable for integrated resource planning.

9. DWR should provide regional planning efforts technical assistance and if available funding for preparing their regional integrated resource plans, like preparing guidebooks for developing Urban Water Management Plans, the optional Water Element for General Plans, and Integrated Resource Plans.

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Data, Analytical Tools, Research and Development*[Again, please categorize, organize, and consolidate]*

1. DWR should develop and maintain the California Water Plan Information Exchange (Water PIE), a new web-enabled data management system containing past, current and projected water supply and use data and trends for developing their integrated resource and watershed plans; data on planned and implemented water resource projects; and a compilation of the regional integrated resource plans and regional planning data provided to DWR by regional entities which are documented, reviewed, and in the public domain.
2. DWR should implement the work plan included in this Water Plan to improve data collection, data management, analytical tools, decision-support tools, and communication tools to support more intensive regional and local water planning and management; provide improved water quantity and quality data; help coordinate assumptions between regions; and serve as a clearinghouse for regional plans, programs and projects. Develop analytical tools which allow data to be used for current and future policy, regulatory, planning, and operational purposes in the public domain.
3. Additional funding is recommended to provide for ongoing statewide groundwater data collection and compilation. The water quality component of data collection and compilation should be expanded to a level of effort comparable to that used for water levels data. The program should encompass actual field collection of geo-hydrologic data, including installation of monitoring wells in locations where data gaps exist.

4. DWR should initiate a long-term and continuous effort to improve, document, and review data and analytical tools for local, regional, and statewide purposes, in conjunction with California universities and local, regional, and federal water agencies and interests.
5. The State should support long-term applied research by California universities into new issues and opportunities arising in California water management.

Drought Contingency Planning*[Again, please categorize, organize, and consolidate]*

1. Critical Water Shortage Reduction Marketing Program: In addition to the commitment of CALFED agencies to provide water transfers data online and to streamline the processes that buyers and sellers must work through to implement certain types of water transfers such as intra regional, short term, and dry year transfers, the Panel recommends that DWR implement a critical water shortage reduction water program.
2. Assistance to Small Water Systems and Homeowners in Rural Counties: Funding education programs targeted at rural homeowners and small domestic water systems which rely on self-supplied groundwater is recommended as well as providing technical assistance in proper well construction and maintenance. Providing information about state and county well construction requirements through a website is also recommended.

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3. Local Agency Groundwater Programs: The drought panel recognized that the CALFED ROD commits CALFED agencies to fund and facilitate locally controlled groundwater projects that would provide 500-1 000 taf of additional storage capacity by 2007. Substantial funding for developing local groundwater recharge and storage programs is provided in Proposition 13 and through the CALFED's Integrated Storage Investigation Program. However, additional federal funding will be critical to the success of this program.
4. Local Agency Integrated Water Management Plans: DWR and other CALFED agencies should work in partnership with local water agencies to assist them in developing plans to facilitate integrated management of supplies for agricultural, urban, and environmental purposes. To help these agencies help themselves, the drought panel found that it is appropriate to provide financial assistance to

encourage planning that optimizes use of local and regional resources.

5. Drought —Related Research and Public Outreach Activities: The drought panel recommended that DWR should identify and seek funding for research areas of long-range weather forecasting, global climate change, and paleoclimatology. Improved long-term weather forecasting capabilities would help in optimizing the operation of State, federal and local water projects. Quantifying the hydrologic conditions beyond the historical records could be possible with advanced paleoclimate research.
6. The panel also recommended that DWR should compile existing local agency drought watch indices and develop regional hydrologic drought indices.

Global Climate Change*[Again, please categorize, organize, and consolidate]*

1. The State should continue and expand monitoring indicators and analytical studies of the impacts of global climate change on California's water supplies, such as snow levels at higher elevations, sea level rise, and runoff patterns. The State should lead the policy debate on how best to plan for and curb climate change impacts and to maximize the efficiency and flexibility of the current water infrastructure.
2. All federal, State and local agencies should incorporate conditions of climate change to the extent possible in the design, planning, and operation of systems. The State should support regional efforts to evaluate climate change impacts including the development of region-specific hydrology for use in evaluating local projects.
3. Secure funding for federal, State and local agencies to develop strategic plans for dealing with climate change.
4. The State should support efforts to enhance public awareness about climate change and make information readily available.

Vulnerability to Catastrophic Events

Flood Control

Agricultural Lands Stewardship

LKey recommendations for the other 23 resource management strategies will be listed here.]

Other Strategies

Principles for Providing State Assistance

The Water Plan includes nine principles, described in Chapter 5 (State Role and Responsibilities), for providing State assistance and public funds to regional and local planning efforts and projects. Because the demand for State assistance is greater than current resources and funding, the following nine principles should be included as criteria for competitively scoring local water agencies and governments applying for State grants and loans:

1. Have, or are developing, long-term, integrated resource plan
2. Identify benefits, beneficiaries & mitigation
3. Promote sustainable resource management
4. Benefit the environment
5. Increase regional self sufficiency
6. Increase regional drought resiliency
7. Promote environmental justice
8. Promote communication, coordination, cooperation & collaboration among local agencies & governments
9. Use sound science, best data and local knowledge

New Planning Framework and Phased Work Plan

In accordance and guided by the statutes of the Water Code, the Department of Water Resources and an active 65 member Advisory Committee, with input from a 320 member Extended Review Forum, prepared this Water Plan Update by first developing a new planning framework to increase its utility and usefulness.

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The Advisory Committee is comprised of 65 representatives of agriculture, urban water districts, businesses, environmentalists, Native Americans, environmental justice advocates, cities, counties, federal and State agencies, the California Bay Delta Authority, academia, and different regions of the State.

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DWR and the Advisory Committee believe that the new framework is one of the significant accomplishments of this Water Plan and should serve as the cornerstone for future updates because the framework: (1) considerably expands public involvement and access to the State's water planning process~ (2) seeks collaborative recommendations that are more robust, have greater shelf-life and are more likely to be adopted by the Governor's Office, Legislature, State federal and local agencies and governments and resource managers~ and (3) results in a strategic plan which is a living document with stated goals, objectives and implementation plan, including progress tracking, indicators and reports.

Extended Review Forum, composed of individuals with a high interest in the process attended periodic briefings and received invitations to advisory committee and work group meetings as well as updates on key developments. With more than 320 members, this group represents an even broader range of interests than the advisory committee.

The new planning framework consists of:

1. Collaborative planning process
2. Comprehensive way for describing current and future water supplies, uses and management (Water Portfolios with over 80 categories) using actual data (not trend-based) for recent yet different water year types, namely 1998 (wet), 2000 (average), and 2001 (drier);
3. Detailed reports on each of the regions of the state;
4. Multiple scenarios for plausible futures (not a single "likely" future) to identify and minimize future uncertainties and risks; and
5. Many diverse resource management strategies to meet future water demands while sustaining our resource base and economy.

This Public Review Draft of the Water Plan marks the end of the first of a three-phase work plan for completing Update 2003 of the Water Plan and beginning Update 2008. Important elements of the new framework, notably future scenarios for regional planning and multi-year drought analysis, will be completed in subsequent phases in 2004 and 2005. DWR and the Advisory Committee developed the phased work plan (presented later in this chapter) to balance stakeholder interest to take the time required to implement the new framework, on the one hand, with the need for the State

to provide the next Water Plan Update in a timely way, on the other. The phased work plan was needed because: (1) DWR and the Advisory Committee want to more fully implement the new framework; (2) we do not yet have stakeholder agreement on the data, analytical tools and methods that DWR would use to quantify and analyze multiple regional scenarios for 2030 including multi-year droughts, and optional management responses; (3) DWR's schedule for conducting data analyses was impacted by the time needed to develop the new framework; and (4) DWR's budget and staff resources were reduced during this update cycle.

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Phased Work Plan

The Department of Water Resources and the Advisory Committee are preparing the Update in three phases.

Phase 1 (2003): Developing a circulation draft for wide public input. This phase describes the State's water situation and what should be done about it, including:

- Data on current water uses and supplies for years 1998 (wet), 2000 (normal), and 2001 (a dry year).
- Recommendations for policies, programs and investment strategies that will help develop water resources, make better use of existing supplies, and protect the environment.
- Recommendations for furthering integrated regional planning
- A work plan including criteria and methods for selecting and testing data and analytical tools for Phases 2 and 3 (short term) and for future Water Plan Updates (long term).

Phase 2 (2004): With a document planned for delivery in 2004, this phase provides the final Update 2003, which will include revised policy recommendations based on wide public input and numerous public hearings. It also documents the data and analytical tools DWR will use in Phase 3 to further evaluate several future scenarios and water management responses. This modification was made after recognizing data and tools budgeted for and used in past Water Plan Updates were not sufficient for the greatly expanded, legally required planning elements and preferred analytical approaches.

Phase 3 (2005): In 2005, DWR will begin work on Update 2008, again including full participation by a broad Advisory Committee. DWR will begin to evaluate a set of water-planning scenarios using the data and tools identified in Phase 2; use a water flow diagram to present evaluation results for future wet and dry years; and receive a California Department of Food and Agriculture food forecast for estimating future irrigated crop-water use. DWR will report its findings from these evaluations as they become available as part of the Update 2008 process.

Advisory Committee and Outreach

This Update recognizes the vital importance of working with key stakeholders to define issues, identify potential approaches, and evaluate planning steps. Since January 2001, DWR and an Advisory Committee representing critical sectors with an interest in water management have worked to shape the new planning framework and strategic planning process. Utilizing large group meetings held roughly every six weeks for three years, more frequent smaller work groups and workshops, and many public briefings, DWR sought a broadly informed and consensus-seeking process. Advisory Committee members provided DWR with substantial suggestions and recommendations on all aspects of Update 2003 (see the adjacent table for collaboration statistics to date).

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Collaboration Statistics

Type of Meeting	Meetings	Person-Hours
Advisory Committee	32	9,855
Workshops	32	2,260
Work Groups	62	4,271
Extended Review Forum & Organizational Briefings	16	426
Tribal Outreach	3	Pending
TOTALS	145	16,812

The role of the Advisory Committee was to provide diverse perspectives and to the fullest extent possible meet the interests of all Californians and the natural environment. The group was called upon to provide DWR with suggestions and conclusions on every aspect of Update 2003, including developing goals and strategies for water management in California.

As a consensus-seeking process, the Advisory Committee strove to reach consensus

on the purpose, content, and process of Update 2003. The support of the entire group was always initially sought; however, where time did not permit the resolution of all fundamental concerns with a proposal, the facilitation team captured the range of support and opposition to the proposal as finally worded. Information was then communicated to DWR, the ultimate decision maker, for consideration and final decision. Those suggestions approaching consensus received the highest possible consideration for incorporation into the Update.

As part of their membership obligations, Advisory Committee members periodically briefed their constituencies on key Update 2003 developments. Members relayed comments received during these briefings to DWR. The briefing process helped ensure two-way communication between members and their organizations. In addition, briefings formally expanded the dialogue beyond the precincts of the Advisory Committee meeting room into a wider audience of potential Update 2003 users.

To create a fair, open and transparent process, the California State University Sacramento, Center for Collaborative Policy (Center) provided impartial third party facilitation and mediation design, implementation and refinement for the consensus-seeking process. The Center ensured Advisory Committee members' interests, views, and opinions were thoughtfully considered and advisory committee activities were governed by its own operating guidelines.

The Extended Review Forum and Organizational Briefings: In addition to the formal advisory body, an Extended Review Forum, composed of individuals with a high interest in the process attended periodic briefings and received invitations to advisory committee and work group meetings as well as updates on key developments. With more than 320 members, this group represents an even broader range of interests than the advisory committee. DWR also used other forums, in addition to the extended review forum, to engage other state, federal and local government representatives, local water interests, the public, and media. DWR periodically briefed the Governor's Office, Legislature, and the Resources Agency on the process.

Using the Internet: The Internet provided another principal venue for Advisory Committee work. In its efforts to create an open and transparent public process, DWR used e-government technology to set up web pages and electronic surveys, and used email correspondence and teleconferencing whenever possible. DWR posted meeting

agendas, materials, and highlights, including draft copies of Update 2003, for all to see. DWR also posted numerical data for the water portfolios and documentation on the web site for use by Advisory Committees and other interested parties.

Customer surveys: In line with the strategic planning process, DWR conducted a customer survey with people who might use the Water Plan to ultimately make the Update 2003 widely understood and useful. The survey served to expand the audience of government, private and non-profit entities to include land use planners, natural resources planners, environmental and social advocacy groups, business sectors (e.g., agricultural, real estate, financing), professional associations, academic institutions, water planners, wholesalers and retailers, and similar individuals and groups.

Looking at the results across regions, the survey indicates the planning horizon for most users is 2010. The issues of interests for evaluation parallel the Advisory Committee's; they include water quality, cost, reliability, and environmental impacts. And major issues of concern are water quality, reliability, and land use planning.

Stakeholder assessments: In addition to the customer survey, the Center for Collaborative Policy conducted several stakeholder assessments with Advisory Committee members throughout the process. These served as direct feedback mechanisms for identifying issues for DWR to consider in Update 2003, assessing staff progress for the work at hand, modifying meeting methods, and improving communication channels between DWR and the Advisory Committee and within the Advisory Committee.

The time taken to use a systemic approach for water planning is an investment. However, because of the current investment, future Water Plan Updates won't have to start from scratch in setting up advisory committees, establishing protocols or reinventing planning approaches.

Consequences of Inaction or Delayed Implementation

The recommended actions in this Water Plan Update were developed to address and offset the challenges facing California water resources, reducing the risks associated with planning for the future, and providing the additional estimated 2030 water demand

of? million ,million acre-feet. These challenges and risks would continue and worsen with inaction or delayed realization of the Water Plan on the part of the State, federal government and local agencies and governments. By not meeting these additional demands, groundwater overdraft could worsen, aquatic ecosystems could be further stressed, and California's economy and agricultural industry could suffer. This could in turn erode current collaboration among stakeholders with increased competition and controversy over more strained and contaminated water supplies; collaboration which is an essential ingredient for regional integrated resource planning to succeed.

We need aggressive and comprehensive implementation of the Water Plan's actions and recommendations to reduce the key risks facing California water which include: multiyear droughts, contaminated supplies and new water quality regulations, global climate change, unpredictable floods, vulnerability to catastrophic events, and significant gaps in data and analytical tools.